

The Ohio State University

Soybean Performance Following Exposure to Enlist One at Multiple Growth Stages - USB 2019

Trial ID: USB-2019_Mult_Exp_Enlist Location: Trial Year: 2019
 Protocol ID: USB-2019_Mult_Exp_Enlist Investigator: Dr. Mark M. Loux
 Project ID: Study Director: Reynolds
 Sponsor Contact:

General Trial Information

Study Director: Reynolds
 Investigator: Dr. Mark M. Loux

Trial Status: E established

ARM Trial Created On: Feb-6-2020

Trial Location

Address (Location): 7721 South Charleston Pike
 City: South Charleston Country: USA United States
 State/Prov.: Ohio
 Postal Code: 45368

Latitude of LL Corner °: 39.86093 N
 Longitude of LL Corner °: -83.6728 W
 Altitude of LL Corner: 1093.00 FT

Conducted Under GLP: No
 Conducted Under GEP: No

Contacts

Study Director: Reynolds

Investigator: Dr. Mark M. Loux

Crop Description

Crop 1: C GLXMA Glycine max Soybean BBCH Scale: BSOY
 Entry Date: May-14-2020 Stage Scale: BBCH
 Variety: Seed Consultants 3319LL
 Attributes: Glufosinate
 Planting Date: May-13-2020 Planting Rate: 160000 S/A
 Depth: 2 IN
 Rows per Plot: 4 Planting Method: PLANTD planted
 Row Spacing: 30 IN Planting Equipment: FE field equipment
 Seed Bed: MEDIUM medium
 Soil Temperature: 62 F Soil Moisture: NORMAL normal, adequate
 Emergence Date: May-25-2020 Harvest Equipment: Kincaid 8XP
 Harvest Date: Oct-9-2020 Harvested Width: 5 FT
 Moisture Meter: Harvest Master Harvested Length: 30 FT
 % Standard Moisture: 13
 Weighing Equipment: Harvest Master HM800

Pest Description

Entry Date: May-14-2020

Site and Design

Treated Plot Width: 6.67 FT Site Type: FIELD field
 Treated Plot Length: 30 FT Experimental Unit: 1 PLOT plot
 Treated Plot Area: 200.1 FT2 Treatments: 16 Tillage Type: CONTIL conventional-till
 Replications: 4 Study Design: FACTOR Factorial

Maintenance

No.	Date	Type	Maintenance Product Name	Rate	Tank Unit	Tank Mix Code	Tank Mix
1.	May-13-2020	HERB	Warrant	48	OZ/A	Y	yes
2.	May-13-2020	HERB	Mauler	8	OZ/A	Y	yes

Soil Description

Description Name: F-7 West
 % Sand: 33 % OM: 3.8 Texture: SIL silt loam
 % Silt: 53 pH: 7 Soil Name: Kokomo
 % Clay: 15 CEC: 20.5 Fert. Level: G good

Analyzed By:

Spectrum Analytic, Wahsington Court House, OH 11-27-2017

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Application Description

	A	B	C	D
Application Date	Jun-24-2020	Jul-1-2020	Jul-15-2020	Aug-5-2020
Appl. Start Time	10:30 AM	2:30 PM	10:45 AM	10:15 AM
Appl. Stop Time	11:00 AM	3:00 PM	11:00 AM	10:30 AM
Interval to Prev. Appl.		7 DAYS	14 DAYS	21 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	V3	R1	R3	R5
Application Placement	BROFOL	BROFOL	BROFOL	BROFOL
Applied By	Loux	Kimmet	Kimmet	Dobbels
Appl. Entry Date	Oct-28-2020	Oct-28-2020	Oct-28-2020	Oct-28-2020
Air Temperature Start, Stop	66 66 F	87 87 F	80 80 F	67 67 F
% Relative Humidity Start, Stop	80 80	44 44	60 60	68 68
Wind Velocity+Dir. Start	8 MPH W	7 MPH NE	7 MPH S	1 MPH N
Wind Velocity+Dir. Stop	8 MPH W	7 MPH NE	7 MPH S	1 MPH N
Wind Velocity+Dir. Max	8 MPH W	7 MPH NE	7 MPH S	1 MPH NNE
Wet Leaves (Y/N)	N no	N no	N no	N no
Soil Temperature	69 F	72 F	72 F	65 F
Soil Moisture	SLIWET	DRY	DRY	SLIWET
Soil Surface Condition	MEDIUM	MEDIUM	MEDIUM	MEDIUM
% Cloud Cover	30	30	1	5

Crop Stage At Each Application

	A	B	C	D
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Days after Emergence	30	37	51	72
Stage Scale Used	BBCH	BBCH	BBCH	BBCH

Application Equipment

	A	B	C	D
Appl. Equipment	6' TTI	6' TTI	6' TTI	6' TTI
Equipment Type	BACCAI	BACCAI	BACCAI	BACCAI
Operation Pressure	44 PSI	44 PSI	44 PSI	44 PSI
Nozzle Type	TTI	TTI	TTI	TTI
Nozzle Size	1110015	1110015	1110015	1110015
Nozzle Spacing	18 IN	18 IN	18 IN	18 IN
Boom Length	6.67 FT	6.67 FT	6.67 FT	6.67 FT
Boom Height	20 IN	20 IN	20 IN	20 IN
Ground Speed	3 MPH	3 MPH	3 MPH	3 MPH
Carrier	WATER	WATER	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC	15 GAL/AC	15 GAL/AC
Mix Size	3 GAL	3 GAL	3 GAL	3 GAL
Propellant	COMCO2	COMCO2	COMCO2	COMCO2

Context	Date	By	Notes
STATUS	Feb-6-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Feb-6-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	May-14-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.
STATUS	Jun-23-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'E' when Emergence Date entered.

Instructions:

1. United Soybean Board (Purdue - MSU Reynolds)
2. Data Collection: Overall injury, Behren injury index, growth stage, harvest index variables (nodes on main stem, pods per node, seeds per pod, 100 seed weight),
3. Soybean yield
4. Entire trial maintained weed-free with a preemergence application of Authority First 6.4 oz/A plus Dual Magnum 1.33 pt/A and a single POST application of glyphosate.

All application timings should be timed based on the growth stage of the untreated check as the vegetative applications will result in delayed maturity.

Overall visual injury ratings, plant heights, soybean growth stage, and Behrens Injury Scale estimate should be recorded 14 and 28 DAT for each application timing.

When the untreated check is ready for harvest a final visual injury, plant height, and percent defoliation rating should be recorded for all treatments as some will likely be delayed.

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Yields should include moisture and test weights which may also be an indicator of maturity delays.

Stage Majority, Percent Master List (BBCH_GS)

12	Trifoliolate leaf on the 2nd node unfolded V2	BSOY	
13	Trifoliolate leaf on the 3rd node unfolded V3	BSOY	
14	Trifoliolate leaf on the 4th node unfolded V4	BSOY	
15	Trifoliolate leaf on the 5th node unfolded V5	BSOY	
16	Trifoliolate leaf on the 6th node unfolded V6	BSOY	
17	Trifoliolate leaf on the 7th node unfolded V7	BSOY	
18	Trifoliolate leaf on the 8th node unfolded V8	BSOY	
19	Trifoliolate leaf on the 9th node unfolded V9	BSOY	
59	First flower petals visible, flower buds still closed	BSOY	R1
65	Full flowering: about 50% of flowers open R2	BSOY	
69	End of flowering: first pods visible (approx. 5 mm length)	BSOY	R3
72	About 20% of pods have reached final length (15-20 mm)	BSOY	R4
75	About 50% of pods have reached final length (15-20 mm)	BSOY	R5
80	First pod ripe, beans final colour, dry and hard R6	BSOY	
85	Advanced ripening; about 50% pods are ripe; beans final	BSOY	R7

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Crop Type, Code	C	GLXMA	C	GLXMA	C	GLXMA
BBCH Scale	BSOY			BSOY		
Crop Scientific Name	Glycine max			Glycine max		
Crop Name	Soybean			Soybean		
Description						
Rating Date	Oct-20-2020	Oct-14-2020	Oct-14-2020			
Part Rated						
Rating Type	weight	moisture	YIELD			
Rating Unit	lbs	%	BU			
Sample Size	150	ft2	1	A		
Number of Subsamples	1		1			
Data Entry Date	Oct-12-2020	Oct-12-2020				
Days After First/Last Applic.	- 76	- 70	- 70			
Trt-Eval Interval	Harvest		Harvest		Harvest	
Days After Emergence	148 DE-1	142 DE-1	142 DE-1	142 DE-1		
ARM Action Codes				TY1		
Number of Decimals	1		1			

Trt No.	Treatment Name	Rate	Other Rate	Other Rate	Appl Unit Code	44*	46*	49*
1	No Enlist One - Vegetative					14.2 -	11.6 -	70.1 -
1	No Enlist One - Reproductive							
2	No Enlist One - Vegetative					14.9 -	11.6 -	73.5 -
2	Enlist One - Reproductive R1	0.168 fl oz/a	5.6 g ae/ha		A			
3	No Enlist One - Vegetative					14.7 -	11.6 -	72.6 -
3	Enlist One - Reproductive R3	0.168 fl oz/a	5.6 g ae/ha		B			
4	No Enlist One - Vegetative					15.1 -	11.5 -	74.4 -
4	Enlist One - Reproductive R5	0.168 fl oz/a	5.6 g ae/ha		C			
5	No Enlist One - Vegetative					13.7 -	11.5 -	67.5 -
5	Enlist One - Reproductive R1	0.168 fl oz/a	5.6 g ae/ha		A			
5	Enlist One - Reproductive R3	0.168 fl oz/a	5.6 g ae/ha		B			
6	No Enlist One - Vegetative					15.5 -	11.4 -	76.2 -
6	Enlist One - Reproductive R1	0.168 fl oz/a	5.6 g ae/ha		A			
6	Enlist One - Reproductive R5	0.168 fl oz/a	5.6 g ae/ha		C			
7	No Enlist One - Vegetative					15.0 -	11.6 -	73.5 -
7	Enlist One - Reproductive R3	0.168 fl oz/a	5.6 g ae/ha		B			
7	Enlist One - Reproductive R5	0.168 fl oz/a	5.6 g ae/ha		C			
8	No Enlist One - Vegetative					14.9 -	11.4 -	73.7 -
8	Enlist One - Reproductive R1	0.168 fl oz/a	5.6 g ae/ha		A			
8	Enlist One - Reproductive R3	0.168 fl oz/a	5.6 g ae/ha		B			
8	Enlist One - Reproductive R5	0.168 fl oz/a	5.6 g ae/ha		C			
9	Enlist One - Vegetative V3	0.168 fl oz/a	5.6 g ae/ha			14.6 -	11.5 -	71.8 -
9	No Enlist One - Reproductive							
10	Enlist One - Vegetative V3	0.168 fl oz/a	5.6 g ae/ha			14.7 -	11.2 -	72.5 -
10	Enlist One - Reproductive R1	0.168 fl oz/a	5.6 g ae/ha		A			
11	Enlist One - Vegetative V3	0.168 fl oz/a	5.6 g ae/ha			16.0 -	15.6 -	74.7 -
11	Enlist One - Reproductive R3	0.168 fl oz/a	5.6 g ae/ha		B			
12	Enlist One - Vegetative V3	0.168 fl oz/a	5.6 g ae/ha			15.7 -	11.8 -	77.2 -
12	Enlist One - Reproductive R5	0.168 fl oz/a	5.6 g ae/ha		C			
13	Enlist One - Vegetative V3	0.168 fl oz/a	5.6 g ae/ha			15.0 -	11.5 -	74.0 -
13	Enlist One - Reproductive R1	0.168 fl oz/a	5.6 g ae/ha		A			
13	Enlist One - Reproductive R3	0.168 fl oz/a	5.6 g ae/ha		B			

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Trt No.	Treatment Name	Rate	Other Rate	Other Unit	Appl Code	44*	46*	49*
14	Enlist One - Vegetative V3	0.168 fl oz/a	5.6 g ae/ha			14.9 -	11.7 -	73.2 -
14	Enlist One - Reproductive R1	0.168 fl oz/a	5.6 g ae/ha		A			
14	Enlist One - Reproductive R5	0.168 fl oz/a	5.6 g ae/ha		C			
15	Enlist One - Vegetative V3	0.168 fl oz/a	5.6 g ae/ha			15.8 -	11.5 -	77.9 -
15	Enlist One - Reproductive R3	0.168 fl oz/a	5.6 g ae/ha		B			
15	Enlist One - Reproductive R5	0.168 fl oz/a	5.6 g ae/ha		C			
16	Enlist One - Vegetative V3	0.168 fl oz/a	5.6 g ae/ha			14.6 -	11.2 -	72.1 -
16	Enlist One - Reproductive R1	0.168 fl oz/a	5.6 g ae/ha		A			
16	Enlist One - Reproductive R3	0.168 fl oz/a	5.6 g ae/ha		B			
16	Enlist One - Reproductive R5	0.168 fl oz/a	5.6 g ae/ha		C			
LSD P=.05						1.74	2.93	8.14
Standard Deviation						1.22	2.06	5.72
CV						8.17	17.53	7.79
Grand Mean						14.96	11.75	73.43
Levene's F						0.613	0.951	0.671
Levene's Prob(F)						0.85	0.518	0.799
Rank X2						.	.	.
P(Rank X2)						.	.	.
Skewness						0.3728	7.7723*	0.371
Kurtosis						-0.2952	61.5375*	-0.2329
Analyzed as						RCB	RCB	RCB
Replicate F						5.358	1.023	6.765
Replicate Prob(F)						0.0031	0.3914	0.0007
Treatment F						0.931	1.010	0.802
Treatment Prob(F)						0.5387	0.4622	0.6689

Crop Type, Code

C = EPP0 species (Bayer) codes
 GLXMA, BSOY, Glycine max, Soybean = US

Rating Type

YIELD = yield

Rating Unit

% = percent

BU = bushel

ft2 = square foot

A = acre

ARM Action Codes

TY1 = 4.84*[C44]*(100-[C46])/87